WHAT IS CLAIMED IS:

1. An error correction coding method for use with an error correction coding apparatus, comprising the steps of:

coding source data for each predetermined size thereof using a product code according to a code V and a code H and thereby generating a plurality of product-code codewords; and

outputting code-H codewords of each of said product-code codewords in a codeword-by-codeword manner and in an alternating fashion for said plurality of product-code codewords; wherein said source data includes data of a plurality of sectors.

2. An error correction coding method according to claim 1 wherein data of the same sector is included in one of said product-code codewords, and one code-H codeword includes data of only one sector.

3. An error correction coding method according to claim 1, wherein when code-H codewords of each of said product-code codewords are outputted, the code-H codewords are outputted in a codeword-by-codeword fashion such that between the code-H codewords including data of the same sector, there does not exist a code-H codeword including data of another sector included in said product code codeword.

4. An error correction coding method according to claim 1, wherein when source data including data of a plurality of sectors is coded into said plurality

product-code codewords, data of each sector is equal in size in said product-code codewords and one code-H codeword includes data of only one sector.

5. An error correction coding method according to claim 4, wherein when code-H codewords of said product-code codewords are outputted, the code-H codewords are outputted in a codeword-by-codeword fashion such that between the code-H codewords including data of the same sector, there does not exist a code-H codeword including data of another sector, the code-H codewords being outputted in an alternating fashion for said product-code codewords.

6. An error correction coding method according to claim 1, wherein:

each of a plurality of sectors of source data includes a plurality of identifiers (ID); and

when code-H codewords of said product-code codewords are outputted, a predetermined number of code-H codewords

each of which includes source data and a predetermined number of code-H codewords each of which includes only redundant data are alternately outputted such that the identifier exists at a predetermined interval in said code-H codewords.

7. An error correction decoding method for use with an error correction decoding apparatus, comprising the steps of:

distributing input data for each

predetermined size thereof in an alternating fashion to a plurality of product-code codeword forms; and

decoding each of said plurality of product-code codeword blocks in a general product-code decoding method and thereby obtaining source data.

8. An error correction coding apparatus, comprising:

means for coding source data for each predetermined size thereof using a product code according to a code V and a code H and thereby generating a plurality of product-code codewords; and

means for outputting code-H codewords of each of said product-code codewords in a codeword-by-codeword manner and in an alternating fashion for said plurality of product-code codewords.

9. An error correction coding apparatus according to claim 8, wherein:

means for coding, when source data includes data of a plurality of sectors, the source data into said plurality product-code codewords, data of the same sector such that said data of the same sector is included in one of said product-code codewords and one code-H codeword includes data of only one sector; and

means for coding the source data such that data of each said sector is included in one of said plurality of product-code codewords and in a predetermined number of code-H codewords of said plurality of code-H codewords of said one product-code

codeword, said predetermined number of code-H codewords not including data of another sector; and

means for outputting, when code-H codewords of each of said product-code codewords are outputted, the code-H codewords in a codeword-by-codeword fashion such that between the code-H codewords including data of the same sector, there does not exist a code-H codeword including data of another sector included in said product code codeword.

10. An error correction coding apparatus according to claim 8, wherein:

means for coding, when source data including data of a plurality of sectors is coded into said plurality product-code codewords, data of each sector such that said data of each sector is equal in size in said product-code codewords and one code-H codeword includes data of only one sector; and

means for coding the source data such that data of each said sector is included in each of said plurality of product-code codewords and in a predetermined number of code-H codewords of said plurality of code-H codewords of said one product-code codeword, said predetermined number of code-H codewords not including data of another sector; and

means for outputting, when code-H codewords of said plurality of product-code codewords are outputted, the code-H codewords in a codeword-by-codeword fashion and in an alternating fashion for said

plurality of product-code codewords such that between the code-H codewords including data of the same sector, there does not exist a code-H codeword including data of another sector.

11. An error correction coding apparatus according to claim 8, further comprising means when source data includes a plurality of identifiers (ID),

said means outputting, when code-H codewords of said product-code codewords are outputted, a predetermined number of code-H codewords each of which includes source data and a predetermined number of code-H codewords each of which includes only redundant data in an alternating fashion such that the identifier exists at a predetermined interval in said code-H codewords.

12. An error correction decoding method for use with an error correction decoding apparatus, comprising:

means for distributing input data for each predetermined size thereof in an alternating fashion to a plurality of product-code codeword forms; and

means for decoding each of said plurality of product-code codeword blocks in a general product-code decoding method and thereby obtaining source data.

13. Recording apparatus for error correction coding, comprising:

a coding device for coding source data for each predetermined size thereof using a product code

according to a code V and a code H and thereby generating a plurality of product-code codewords;

an output device for outputting code-H codewords of each of said product-code codewords in a codeword-by-codeword manner and in an alternating fashion for said plurality of product-code codewords; and

a recording device for recording said code-H codewords.

14. Reproducing apparatus for error correction coding, comprising:

a reproducing device for reproducing data out of a disk;

a distributing device for distributing input data for each predetermined size thereof in an alternating fashion to a plurality of product-code codeword forms; and

a decoding device for decoding each of said plurality of product-code codeword blocks in a general product-code decoding method and thereby obtaining source data.

15. Reproducing apparatus for error correction coding, comprising:

a reproducing device for reproducing data out of a disk;

a distributing device for distributing input data for each predetermined size thereof in an alternating fashion to a plurality of product-code

codeword blocks; and

a decoding device for decoding each of said plurality of product-code codeword blocks in a general product-code decoding method and thereby obtaining source data.

16. A transmitting apparatus for error correction coding, comprising:

a coding device for coding source data for each predetermined size thereof using a product code according to a code V and a code H and thereby generating a plurality of product-code codewords;

an outputting device for outputting code-H codewords of each of said product-code codewords in a codeword-by-codeword manner and in an alternating fashion for said plurality of product-code codewords; and

a transmitting device for transmitting said code-H codewords.

17. A reproducing apparatus for error correction coding, comprising:

a signal receiving device for receiving input data via a communication path;

a distributing device for distributing input data for each predetermined size thereof in an alternating fashion to a plurality of product-code codeword blocks; and

a decoding device for decoding each of said plurality of product-code codeword blocks in a general

product-code decoding method and thereby obtaining source data.